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MAPPING COASTAL VEGETATION, LAND USE  
AND ENVIRONMENTAL IMPACT FROM ERTS-1

V. Klemas  
College of Marine Studies  
University of Delaware  
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Report on Significant Results

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### SIGNIFICANT RESULTS

Vegetation map overlays at a scale of 1:24000 compiled by multi-spectral analysis from NASA aircraft imagery for all of Delaware's wetlands are being used as ground truth for ERTS-1 mapping and by state agencies for wetlands management. Six major vegetation species were discriminated and mapped, including percentages of minor species.

Analogue enhancements of wetlands vegetation and dredge-fill operations have been produced using General Electric's GEMS data processing and ERTS false color composites. Digital, thematic land use and vegetation mapping of entire Delaware Bay area is in progress using Bendix Corporation's Earth Resources Data System and ERTS Digital Tapes. Statistical evaluation of target-group selection reliability has been completed.

Three papers have been published on ERTS-1 coastal vegetation and land use. Local and state officials are participating in our ERTS-1 program as co-investigators.

1. Szekiolda, K. H., Kupferman, S. L., Klemas, V., Polis, D. F., Element Enrichment in Organic Films and Foam Associated with Aquatic Frontal Systems, Journal of Geophysical Research, Volume 77, No. 27, September 20, 1972.
2. Klemas, V., Detecting Oil in Water, Instrumentation Technology, September, 1972.
3. Klemas, V., Srna, R., and Treasure, W., Investigation of Coastal Processes Using ERTS-1 Satellite Imagery, American Geophysical Union Annual Fall Meeting, San Francisco, California, Dec. 4-7, 1972.
4. Klemas, V., Daiber, F., Bartlett, D., Crichton, O., Fornes, A., Application of Automated Multispectral Analysis to Delaware's Coastal Vegetation Mapping, American Society of Photogrammetry Annual Meeting, Washington, D. C., March 11-16, 1972.
5. Klemas, V., Daiber, F., Bartlett, D., Identification of Coastal Vegetation Species in ERTS-1 Imagery, NASA ERTS-1 Symposium on Significant Results, Washington, D. C., March 5-9, 1973.
6. Klemas, V., Treasure, W., and Srna, R., Applicability of ERTS-1 Imagery to the Study of Suspended Sediment and Aquatic Fronts NASA ERTS-1 Symposium on Significant Results, Washington, D. C., March 5-9, 1973.
7. Kupferman, S., Klemas, V., Polis, D., and Szekiolda, K., Dynamics of Aquatic Frontal Systems in Delaware Bay, A.G.U. Meeting, Washington, D. C., April 16-20, 1973.
8. Klemas, V., Srna, R., Treasure, W., Assessment of Sediment Dispersal Patterns on Delaware Bay by Use of ERTS-1 Satellite Imagery, International Symp. on Interrelationships of Estuarine and Continental Shelf Sedimentation, Bordeaux, France, July 9-14, 1973.
9. Klemas, V., (Invited Paper) Requirements for Laser Systems Used in Coastal Investigations, Conference on the Use of Lasers for Hydrographic Studies, Wallops Island, Va. September 12, 1973. (Sponsors NASA, NOAA, EPA, NAVY).
10. Klemas, V., Borchardt, J. F., Treasure W. M., Suspended Sediment Observations from ERTS-1, Remote Sensing of Environment, Vol.2, 1973.
11. Klemas, V., Srna, R., Treasure, W., and Rogers, R. Satellite and Aircraft Studies of Suspended Matter and Aquatic Interfaces in Delaware Bay, A.S.P. Symposium on Remote Sensing in Oceanography, Orlando, Florida, Oct. 2-5, 1973.
12. Klemas, V., Bartlett, D., Daiber, F., Mapping Delaware's Coastal Vegetation and Land Use from Aircraft and Satellites, A.S.P., Symposium on Remote Sensing in Oceanography, Orlando, Fla., Oct. 2-5, 1973.
13. Klemas, V., (Invited Paper) Satellite Studies of Turbidity, Waste Disposal Plumes and Pollution - Concentrating Water Boundaries, Second Conference on Environmental Quality Sensors, National Environmental Research Center, Las Vegas, Nevada, October 10, 1973. (Sponsor EPA).